

Roger W. Byard MBBS, MD
(Marks Chair of Pathology)
Discipline of Pathology, Level 3 Medical School
North Building, The University of Adelaide,
Frome Road, Adelaide 5005, Australia
Tel.: +61 618 8303 5441; fax: +61 618 8303 4408
E-mail address: byard.roger@saugov.sa.gov.au

Henry F. Krous MD
(Director of Pathology)
Rady Children's Hospital, San Diego, La Jolla, CA, USA
University of California,
San Diego School of Medicine, La Jolla, CA, USA

Available online 4 March 2008

Stature estimation: Valuable precautions

Dear Editor,

Our letter is in response to a recently published article by Agnihotri et al. on stature estimation from foot length.¹ Identification of dismembered human remains is of paramount importance in medicolegal investigations, and stature estimation is one of the primary tasks before a Forensic scientist. When an individual foot is subjected to medicolegal examination, somatometry of the foot, osteological and radiological examination can help in the determination of primary indicators of identification such as sex, age and stature. We wish to congratulate the authors for their research on relationship between foot length and stature using linear and curvilinear regression models. However, in our opinion, some of the conclusions drawn and methodology used need further explanation and clarification.

The study was conducted on medical students from Mauritius and India. Different formula need to be derived for different population groups,² owing to inherent population differences in various dimensions that are attributed to genetic and environmental factors.^{3,4} Thus, we wish to know if the subjects from India and Mauritius were analysed separately and if so, were there any significant differences between the two population groups. The stature of an individual remains steady between 20 and 32 years.^{5,6} Thus authors' age based categorization of the subjects into those under 20 years; 20–22 years; and over 22 years is interesting and needs to be explained.

Authors used variables such as age, sex and foot length in deriving general multiple linear regression model for stature estimation. When sex was used as a variable, authors coded males as '1' and females as '2'. We feel that use of such 'coded' variables in regression equation analysis is limited and does not provide any additional benefit in identification of human remains, for if gender is not confirmed and remains unknown, the formula can not be used and if gender is known, stature can be estimated directly using formula derived separately for males and females in a population group. Thus, we propose that such quantification of qualitative data should be avoided by the researchers.

References

1. Agnihotri AK, Purwar B, Googoolybe K, Agnihotri S, Jeebun N. Estimation of stature by foot length. *J Forensic Leg Med* 2007;**14**:279–83.
2. Telkka A. On the prediction of human stature from the long bones. *Acta Anat (Basel)* 1950;**9**:103–17.
3. Malina RM, Little BB, Stern MP, Gaskill SP, Hazuda HP. Ethnic and social class differences in selected anthropometric characteristics of Mexican American and Anglo adults: the San Antonio heart study. *Hum Biol* 1983;**55**: 867–83.
4. Katzmarzyk PT, Leonard WR. Climatic influences on human body size and proportions: ecological adaptations and secular trends. *Am J Phys Anthropol* 1998;**106**:483–503.
5. Trotter M, Gleser GC. Estimation of stature from long bones of American Whites and Negroes. *Am J Phys Anthropol* 1952;**10**:463–514.
6. Hertzog KP, Garn SM, Hempy 3rd HO. Partitioning the effects of secular trend and ageing on adult stature. *Am J Phys Anthropol* 1969;**31**:111–5.

Tanuj Kanchan DFM, MD
(Assistant Professor)
Ritesh G. Menezes MD, PGDMLS, Diplomate NB
(Assistant Professor)
Department of Forensic Medicine and Toxicology,
Kasturba Medical College,
Light House Hill Road,
Mangalore, Karnataka 575001, India
Tel.: +91 824 2444590x5565 (O); +91 9448252394 (R);
fax: +91 824 2428183.
E-mail addresses: tanujkanchan@yahoo.co.in,
tanujkanchan@gmail.com (T. Kanchan)

M.S. Kotian MSc
(Associate Professor)
Department of Community Medicine,
Kasturba Medical College,
Light House Hill Road,
Mangalore, Karnataka 575001, India

Available online 11 April 2008